JOINT MPH PROGRAM OF ADDIS CONTENENTAL INSTITIUTE OF PUBLIC HEALTH AND GONDAR UNIVERSITY

ASSESSMENT OF EMERGENCY CONTRACEPTION AMONG STUDENTS OF HIGHER INSTITUTIONS IN ADAMA TOWN

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES, JOINT MPH PROGRAM OF ADDIS CONTINENTAL SCHOOL OF PUBLIC HEALTH AND GONDAR UNIVERSITY IN PARTIAL FULFILMENT OF THE REQUIREMENTS' OF THE DEGREE OF MASTERS OF PUBLIC HEALTH

By

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ACRONYMS

ACIPH	Addis Continental Institute of Public Health
AU	Adama University
CI	Confidence Interval
CSA	Central Statistics Agency
EC	Emergency Contraception
ECP	Emergency Contraceptive Pills
FP	Family Planning
IUD	Intra Uterine Device
MPH	Masters in Public Health
OHB	Oromia Health Bureao
OR	Odds Ratio
RH	Reproductive Health
RVUC	Refit Valley University Collage
SPSS	Statistical Package for Social Scientists
STIs	Sexually transmitted Infections
TBA	Traditional Birth Attendants
U.S.	United States
UNFPA	United Nations Population Fund
USA	United States of America
WHO	World Health Organization

ABSTRACT

Background: In Ethiopia, Emergency Contraception (EC) could play a critical role in reducing consequences of unprotected sexual intercourse especially in adolescents and students such as unintended pregnancies and unsafe abortions, but very few people are aware about and practice it.

Methods: A cross-sectional institution based quantitative survey was carried out, using structured, anonymous self-administered questionnaire among students of higher institution in Adama town, East Oromia, central Ethiopia on March-April 2010 to determine level of awareness, basic knowledge and practice/ utilization of EC and determinants to basic knowledge and practice/utilization to EC . A total of 830 students from both sexes were involved in the study. level of basic knowledge and Magnitude of utilization of EC was calculated using frequencies and logistic regression was used to estimate odds ratios and 95% confidence intervals on determinants of basic knowledge and utilization of EC using SPSS statistical packages.

Result: Among all students 592 (71.5%) (95% CI 66.6 - 76.0%), students said that they have heard or aware about emergency contraceptives. But only 241(29 %) (95% CI: 27.1%, 36.5%) of the students have basic knowledge of EC specifically on correct timing of administration, on its indication and on the name of the most common brand available in the market. media was the most common source of information for those who are aware about EC, which account 32.3%, whereas for those who have basic knowledge on EC school/collage was cited as the main source of information which account 14.3%. Regarding Utilization, only 118 (14.2 %) (95% CI 12.3%-19.9%) had ever used EC before .When asked about the specific types of EC they have ever used, 64 (54.2%) mentioned pills and 16 (13.6%) mentioned Intra Uterine Contraceptive Devices (IUCDs) and 32 (27.1%) mentioned other methods. Students on health and related courses, senior students, students who have elder age, students who are living with their parents and ethnically Amhara students have relatively higher level of knowledge on EC than their counterparts, and the trend of EC practice is higher for Female students compared to male students to their partners, students who have positive attitude to EC, students who are attending non health related courses, students who are followers of Christian orthodox , unmarried or never married students and relatively younger age students.

Conclusion: The study has shown that there is low level of basic knowledge and practice/utilization of emergency contraceptives among university and college students. Therefore, it is recommended that EC needs due attention and remedial action from policy makers, college Officials, non-governmental organizations, parents, students and other concerned bodies. Programs aimed at EC must address these identified factors or correlates EC.

1. INTRODUCTION

Between 1995 and 2000, women worldwide experienced over 300 million unwanted pregnancies.[1] During the same time period, over 700,000 of these women died of pregnancy-related causes, including over 400,000 who died from complications of unsafe abortion.[2] Many of these women could have avoided their unwanted pregnancies with use of emergency contraception (EC), a safe, effective means of preventing pregnancy following unprotected sex. While many governments are taking steps to put EC into women's hands, millions of women around the world who could benefit from EC have never heard of it. Among those who have, few know where they can get EC or how to use it.[3]

Unintended pregnancy is a potential hazard for every sexually active woman. It is a worldwide problem that affects women, their families, society and nation. A complex set of social and psychological factors puts women at risk of unintended pregnancy.[4]

Unintended pregnancy poses a major challenge to the reproductive health of young adults in developing countries. Some young women with unintended pregnancies obtain abortions—many of which are performed in unsafe conditions—and others carry their pregnancies to term, incurring risks of morbidity and mortality higher than those for adult women.[5]

Ethiopia has a high incidence of unwanted pregnancies and incomplete and unsafe/septic abortions, particularly among adolescents. Several studies in the country have revealed that women who tend to have unintended pregnancies and undergo induced abortion are below the age of 30 years and are literate; many of whom being above the secondary educational level. [6]

Given increasing adolescent sexual activity and decreasing age at first sex in developing countries,[7] the use of contraceptives including EC to prevent unwanted pregnancy and unsafe abortion has paramount importance, however, based on studies conducted in some developing countries contraceptive use among adolescents is low.[8] A study conducted among college students in Nepal revealed that 43 % male and (55%) of female students did not use condom at the first premarital sexual intercourse[9]. Similarly Studies conducted on western and southern Nigeria has found rates of contraceptive use among sexually active adolescents is about 30%. [10] With similar study conducted in our country on high school students showed that the mean age for sex debut for both sexes is 16 years and according to this study many students were sexually active, some had multiple sexual partners and many had sex without using condoms which puts them at a higher risk of acquiring unwanted pregnancy and other STIs. [11]More specifically study conducted on female university and college students in Addis Ababa also showed low level of knowledge and practice of EC, only 4.9% respondents reported that they had used

EC methods previously.[12]Hence these few surveys conducted on issues related to EC have shown that the level of knowledge and utilization of EC is low. However, there is little information about factors affecting knowledge and practice of EC and the involvement of male students on EC to their partners in the country.

Therefore, this cross-sectional study has been conducted to assess levels and determinants of awareness and utilization of EC on students of both sexes in higher institutions of Adama Town. Where studies in related issue has not been done so far and we hope this study may serve as bench mark study for similar and or related future studies in town demonstrating fast growth in higher education and other sectors.

2. LITERATURE REVIEW

Women living in every country, irrespective of the development status, have been facing the problem of unintended pregnancy. Over 100 million acts of sexual intercourse take place each day resulting in around 1 million conceptions, about 50 percent of which are unplanned and about 25 percent are definitely unwanted.[13]In developing countries between 20- 40% of all births are unwanted posing hardships for families and jeopardizing the health of millions of women and children.[14],[15],[16] .In Ethiopia up to 33.3% of sexually active women reported that their recent pregnancy were unintended.[17]

Given increasing adolescent sexual activity and decreasing age at first sex worldwide,[18],[19] consequences of un intended pregnancy is expected to be the major Reproductive Health (RH) problem in this age groups. Research conducted in the USA has reported that highest rates of unintended pregnancy occur among college-age women, with 60% of pregnancies among 20-24 years old being unintended. The percentage of unintended pregnancy is even higher among 18-19-year-old females (79%) [20]. similarly study conducted in Nigeria identified Post –secondary schools students form an important high risk group for unplanned pregnancies. For instance, most of them reside in hostels where there is no parental supervision. As such, they freely associate with one another, while large number of them engaged in premarital sex.[21],[22] Similarly Studies have shown that in Ethiopia up to 60% of adolescent pregnancies are unwanted or unintended [23]

Consequences of unprotected sex, such as unintended pregnancy and unsafe abortion, can be prevented by access to contraceptive services including emergency contraception. Emergency contraception (EC) is contraception administered after unprotected intercourse. EC is the only method women can use to prevent pregnancy after they have had unprotected sexual intercourse, have experienced a contraceptive failure, have remembered too late that they have forgotten to take their birth control pills, or have been forced to have sex against their will. EC is sometimes referred to as "morning-after" or "post-coital" contraception. EC is intended for occasional or emergency use only and not as a regular means of contraception.[24] Formerly, EC was thought to be effective only within 72 hours, but recent studies have confirmed it is effective for up to 120 hours[25],[26]. EC methods include taking special doses of ordinary birth control pills as well as inserting an IntraUterine Device (IUD). Depending on the method used, EC can reduce women's risk of becoming pregnant from a single act of intercourse by between 75 and 99 percent[27]. Thus the use of EC has had a significant impact in preventing unintended pregnancies and abortions worldwide. In the United States, for instance, an estimated 51,000 abortions were averted through the use of EC in 2000; EC use accounted for roughly 43% of the overall decrease in U.S. abortions between 1994 and 2000.[28] Because of its potential to reduce maternal mortality and morbidity

caused by unsafe abortion, EC has an especially important role in countries where access to safe abortion is restricted.

However based on several studies done in developing countries contraceptive use among sexually active adolescents is low. About 30%, [29] considerably lower than the rates reported for developed countries which are up to 95%.[30] Data from the United Nations Population Fund (UNFPA) indicate that the prevalence of modern contraceptive use is very low in some Africa countries specially for Sub Saharan Africa, only 15%, with large unmet needs, Up to 27%,.[31],[32] Ethiopia stands lowest in family planning use in Africa with 8% and highest un met need 36%,[33] and studies conducted on contraceptive use among currently married sexually active women 15-49 years old, showed only 14.7 % use contraception.[34] In addition based on study conducted on high school students, the mean age for sex debut for both sexes was 16 years and according to this study many students were sexually active, some had multiple sexual partners and many had sex without using condoms which puts them at a higher risk of acquiring unwanted pregnancy.[35]

Abortion is a frequent consequence of unintended pregnancy and in the developing countries it can result into serious long-term, negative health effects including infertility and maternal death .[36]Worldwide, of the 600 000 maternal deaths from pregnancy-related causes each year, an estimated 13% are attributable to complications of induced and unsafe abortion.[37] The World Health Organization (WHO) estimates that In Africa, the risk of dying after unsafe abortion is one in hundred fifty.[38] Unsafe abortion is a major medical and public health problem in Ethiopia too.[39],[40],[41] Ethiopia has a high incidence of unwanted pregnancies and incomplete and unsafe/septic abortions, particularly among adolescents. Several studies in the country have revealed that women who tend to undergo induced abortion are below the age of 30 years and are literate; many of whom being above the secondary educational level[42],[43],[44],[45]. Based on unsafe abortion survey in selected health facilities in 9 of the 11 administrative regions of Ethiopia from June to December 2000, showed that out of 1075 women presented, 58% were in the age of 20-29 years and 27.5 % were with secondary education.[46] similarly A study conducted on abortion at Jimma Hospital, South western Ethiopia showed that the problem of induced abortion is quite significant and Students accounted for 28 (35%) of the cases.[47] Despite this Because of cultural Taboos adolescents in many developing countries rarely discuss sexual matters explicitly with their parents. Most information for their patchy knowledge comes from peers of the same sex who may themselves lack adequate information or are incorrectly informed[48]. Studies also suggested that adolescents have limited knowledge about sexual and reproductive health and know little about the natural process of puberty. This lack of knowledge about reproductive health may have grave consequences.[52] Study conducted in our country on female university and college students showed low level of knowledge and practice of EC, only 4.9% respondents reported that they had used EC methods

previously. ,[49,] Having these entire one can easily observe that knowledge and practice of contraceptive, including EC very low .However no study has been done or little information is available on factors affecting awareness and utilization of contraception in particular EC among post secondary students of both sexes that may help to inform policy makers and education planners in Ethiopia. Hence the aim of this study is to investigate levels and determinants of awareness and utilization of EC among college/ university students. Which we hope that this study will provide baseline data to assist policy makers and education planners in developing appropriate and evidence-based strategies and curricula in school/college that will improve use of emergency contraceptives by Ethiopian youth. In addition it will complement already done few studies on related issues for future need and study.

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3. OBJECTIVES

3.1 GENERAL OBJECTIVE:

To assess the level of basic knowledge and utilization of EC among students of higher institutions in Adama town and its determinants.

3.2 SPECIFIC OBJECTIVES:

1. To determine level of Awareness, Basic Knowledge and Practice/ utilization of EC among students of higher institutions in Adama town
    a. To determine level of awareness of EC among students of higher institutions in Adama town
    b. To determine level of basic Knowledge of EC among students of higher institutions in Adama town
    c. To determine level of utilization of EC among students of higher institutions in Adama town
2. To assess the association between **socioeconomic**, **demographic and academic** characteristics of students, and basic Knowledge and utilization of EC.

4. METHODS

4.1 STUDY SETTING

The study was conducted in Adama town, previously known as Nazareth, Nazareth is one of the fastest-growing geographical and commercial centre of Ethiopia and the previous capital of the Oromia Region. It is located in the Misraq Shewa Zone of Oromia, at 8°33′N 39°16′E8.55°N 39.27°E at an elevation of 1712 meters, 99 km southeast of Addis Ababa. The city sits between the base of an escarpment to the west, and the top of the Great Rift Valley to the east.

Fig 4.1.1 Location Adama within Ethiopia

Fig4.1.2 Location of AU in Adama Town

Based on figures from the Central Statistics Agency (CSA) in 2005, this city has an estimated total population of 228,623 of whom 114,255 were males and were 114,368 females, although other estimates confirm that the current population exceeds 200,000. In Adama town there are total of seven higher educational institutions of which Adama University (AU) is the only governmental institution at the time of this survey. AU has its medical branch in Assela town, it was established in September 1993 as collage. Adama University was the first institute in Ethiopia to offer degree programs for technical teachers. Formerly it was known as Nazareth Technical College and Nazareth College of Technical Teachers Education. Adama university inaugurated on July 7 2006 and According to its web site the university has total enrolment of 10,000-14,000 students and provide both under graduate and postgraduate level courses in Arts & Humanities, Business & Social Science, Engineering, Engineering, Medicine & Health, Medicine & Health.

According to it's web site (RVUC) Refit valley university collage is private university collage which was established in October 2000 in Adama town, currently it has 10 campuses in major towns

of Oromia region, Harer, Diredawa and additional 2 campuses in Addis Ababa, currently it hosts more than 16, 000 students in its various campuses and provides Diploma and degree level courses in wide variety of fields.

4.2 STUDY DESIGN

The study design was quantitative; institution based cross-sectional survey conducted from March to May 2010 to assess level of Awareness, Basic knowledge and practice/utilization of EC and determinants to Basic knowledge and Practice/utilization of EC among students of higher institution in Adama town.

4.3 STUDY POPULATION

4.3.1 *Source population*

The source populations for this study were all students in AU and RVUC of Adama campus who were attending courses during the study period. The study population were students of both sexes attending courses during the study period and selected by our sampling procedure to be part of the study. Since any higher institution students at the time of survey are potential study population, all students in both institutions were legible for this study and we didn't had any inclusion and exclusion criteria.

4.3.2 Sample size determination

Previous studies else were in Ethiopia and in other Africa countries on similar population reported varied figures related awareness, basic knowledge and utilization of EC. Accordingly similar study conducted in the region showed that awareness level and utilization level of 43.5% and 4.9% respectively and Magnitude of EC knowledge that varies from 11 % to 36%.[24,49]

Single population proportion formula was used to calculate the sample size. Therefore, the sample size required for this study was calculated based on the assumption that the level awareness among university students is 43.5% and level of utilization of EC 4.9 %, With desired precision of 5% at 95% confidence level and with a design effect of 2 and non response rate of 15%, the formula used to calculate the sample size is as follows,

$\mathbf{n} = [Z\sim/2]^2\ p\ (1-p)/d^2$, for large N and $\mathbf{n_r} = \underline{n}/1+n/N\_$ for N less than 10,000

Where, **N** = Source population- all students registered in AU and RVUC.

$\mathbf{n_r}$ = Required Sample Size

Z~/2 = Value of the standard normal distribution corresponding to a significant level of alpha (~) 0.05, which is 1.96 and d = Marginal Error, considered to be 0.05 or 5% using

P = Proportion **awareness** which is Assumed to be 0.435, (43.5%) , nr = **378**

P= proportion of having **knowledge which** is assumed to be 0 .11(11%) nr = **150**

P= level of **utilization**, which was assumed to be 4.9 %(0.049) nr = **71**

By comparing the different findings on the previous studies and by using Epi-Info statistical sample size & power calculation for population survey, the figure that can yield relatively larger sample size at relatively reasonable cost was taken to be 43.5 %, with expected 15% non response rate and design effect of 2 will be considered so that the other attributes of EC awareness, knowledge and utilization may be captured, and this helps for estimation of the second objective. Hence the sample size calculated for total source population 19,000, and taking account the above assumption would be 870**.**

4.3.3 Sampling procedure

A two stage sampling technique was employed to get the required sample size for this study. First, given that any of higher institution students found in Adama town are legible for this study and in view of expected higher number and diversity of students in AU and RVUC, these two institutions were purposively selected for this study. Ones study subjects to be included in the study in each of these institutions were allocated in proportion with the total number of students found in each of these campuses at the time of survey and with expected number of 30-40 students per classroom, then with simple random sampling classes/sections were selected by giving equal chances for health and non health students in both institutions and all students from the selected classes/sections were considered as study subjects. (Annex1)

4.4 DATA COLLECTION

4.4.1 Study instrument and measurement of variables

Data collecting instrument was a six-page, anonymous, self-administered questionnaire and developed in English by adapting the pertinent variables and terminologies of EC from UNFPA conceptual frame work for FP (Annex: 6) and Pathfinder Comprehensive Reproductive Health and Family Planning Training Curriculum, [50]and additionally from similar studies conducted in Addis Ababa, south Africa and Michigan university students([8],[10],[12]) .Experts on EC and FP and colleagues

revised it repeatedly. Then, the English version was translated in to Amharic (National Language in Ethiopia) that was found to be universal for all the study participants. Back-translation was done by another expert to check the consistency of meanings; the questions were closed-ended. It is has five parts. (Annex: 3)

The first part contains information on the demographic characteristics of the study participants. Such as Age , sex, Marital status, Religion, Level in the university, Permanent place of residence, Type of current accommodations, Received RH education in school/College, Course being attended at the university/collage, Type of university/collage(public or private), Ethnicity.

The second part assessed the basic knowledge of students about emergency contraceptive pills; we determined basic knowledge about ECPs using four multiple-choice questions. The four questions to evaluate the level of basic knowledge about ECPs were: (1) "which of these is an emergency contraceptive pill?", (2) "what is the maximum acceptable time after sex for a woman to take the ECP?", (3) "ECP is a method of early abortion",(4) "when taken early, ECPs can prevent sexually transmitted infections". Each correct question corresponded to 1 point, and so there will be a total of 4 points for the four questions. Arbitrarily students were considered as having basic knowledge on EC if they scored at least two of the four knowledge questions on EC . And they will be considered as having not basic knowledge on EC if they scored none or one or below 50 %.

Part three was attitude and for simplicity of mathematical analysis it was measured using four items rated on a four-point Likert scale as (1) strongly disagree, (2) disagree, (3) agree and (4) strongly agree. The four items were: (a) "I would use ECP if I have unprotected intercourse during the unsafe period", (b) "The ECP is safe for its users", and (c) “I would recommend ECPs to a friend “and (d) “Providing ECPs would discourage consistent use of condom. Using this four-point scale for 4 questions, hence the maximum score for each respondent was sixteen and the minimum was four. Therefore students who responded as agree or as strongly agree for most of attitude questions will have ultimately high total score and students who responded as disagree or strongly disagree wil have low total score thus We decided that a high score which is greater than eight will indicative of positive attitude while a low score less than eight would be indicative of a negative attitude.

While the fourth part was concerned with their practices as regards ECPs. Part five of the questionnaire require the students to state their prior experience with ECPs and associated sexual risk practices. It consisted of 14 structured questions.

4.4.2 Data collection procedure and quality control

Data was collected with pre tested self administered questionnaire. The instrument was pre-tested among students not selected for the study and it was refined as per the finding. The whole data was collected within total of 4 days. Three diploma data collectors and one degree holder statistician supervisor who had executed similar activities before were assigned for the whole data collection, data cleaning, and coding and data entry. All were given adequate briefing and orientation before and after pre test with emphasis on the objectives of the study, the contents of the questionnaire, issues related to the confidentiality and the rights of respondents. Ones this was done then data collectors were given full responsibility to handle the whole process of data collection and to check and correct questions raised by the respondents. The overall data collection, cleaning and entry was coordinated and supervised by the principal investigator.

4.5 OPERATIONAL DEFINITIONS OF VARIABLES AND THEIR MEASUREMENTS

Table 4.5.1 Operational definitions of variables and their measurements

Variables	Description	Measurement scale
Ever heard of EC/Awareness	Wethere respondents has ever heard any of EC	Nominal 0=No 1=yes
Type of EC ever heard //awareness	Type of the EC ever heard by the respondent	**Nominal** *0= pills* *1=IUCD* *2= others*
Type of EC Ever used/utilization	Type of EC the respondent ever used (females only)	**Nominal** **0**= *pills* *1=IUCD* *2= others*
Ever had sex	We there the respondent has ever had practiced sex	**Nominal** 0=No **1= yes**
Age at first sex	Respondents' completed age at the time of first sex	Ordinal for bivariate analysis 0 = Less than 16 years 1 = 16 years and more Interval scale for multivariate
Ever used contraceptives	Wethere the respondent used any of the regular contraceptive before	**Nominal** 0=No 1=yes
Type of contraceptives	Type of the any of the contraceptive the respondent used	**Nominal** 0=Pills 1=inject able 2= others
Unintended pregnancy	Wethere the respondent had un intended pregnancy/ impregnated some one	**Nominal** 0=No 1=yes
Induced abortion	Wethere the respondent had induced abortion/ impregnated some one	**Nominal** 0=No 1=yes
Number of unintended pregnancy/ induced abortion	Respondents' completed response on the number of un intended pregnancies/ induced abortions	**Ordinal for bivariate analysis** *0=1* 1=2 2=3 and above Interval scale for multivariate
Ever used of EC method	Type of EC method respondents ever used in s the past	**Nominal** 0=Pills 1=IUCD 2= others
Basic knowledge on EC	Respondents correct answer to at least two of knowledge questions to label them	**Nominal** 0=no 1= yes Logistic regression
Ethnicity	Respondent ethnicity	***Nominal*** *0=Oromo* *1=Amhara* *2=Tigre* *3=others*
Attitude	Respondents thinking ,tendency towards to use EC, recommend EC	***Nominal*** ***1(>8 on likert scale) positive*** ***2(<8 on likert scale) Negative***

4.6 DATA PROCESSING AND ANALYSIS

Data collected were entered using EPI-INFO version 3.3.2. In order to ensure the quality of data at the entry stage, random counter checking of already entered data with the hard copy was employed for 20% of the sample and resulted no error. Further cleaning was done at the end of data entry by running frequencies for each variable in order to identify and mange outliers, abnormal values and missing values or incompleteness. Some abnormal and missing values especially on the dependent variables were found to be non-differential and regarded as 'non- responses'.

The data after being ready for analysis was exported and analyzed using SPPSS 15.0 Statistical Packages. Descriptive analysis was done for each variable in the study by running frequencies. Level awareness, Basic knowledge utilization of EC was determined (estimated) by running frequencies with their 95% **C**onfidence **I**nterval (CI) estimates. Then cross tabulation was done for each independent variable against the dependent variables to observe the relative proportional difference of values of positive estimates (students who are aware, who have basic knowledge on EC and students have practiced EC compared to those who are not aware, students who don't have basic knowledge and those who don't have practice to EC.

For testing the strengths of the associations and their statistical significance, Odds Ratio (OR) and 95% CI were calculated for each independent variable against the dependent variables using binary logistics. Finally, multivariate analysis was employed using multiple regression models for categorical variables step by step (containing all those variables having significant association in the crude odds ratio and those variables considered as important factors) in order to account potential confounding factors and to observe the relative direct effect of independent variables against the dependent variables. Variables having P-values less than 5% were considered as significant covariates or factors.

4.7 VARIABLES

4.7.1 Independent variables

- **Socio economic and demographic characteristics** – such as age, residence, ethnicity, religion, marital status, etc;
- **Academic background** – Type of institution (public or private), program being attended , level in the university, course being studied, RH or related course before
- **Sexual History** – sexual activity, age at first sex, used any contraceptive before, type of contraceptive, pregnancy, unintended pregnancy, abortion etc;
- **Attitude towards EC** - Use EC if I have un protected sexual intercourse, recommend EC to a friend, EC is safe, EC discourage persistent use of condom such.

4.7.2 Dependent variables

- Awareness about EC-
- Basic Knowledge towards EC
- Utilization of EC

4.8 ETHICAL CONSIDERATION

Ethical clearance was obtained from all concerned authorities at each level namely from Gondar university research and publication office. In order to ensure privacy, male and female respondents were requested their responses in separate rooms. Confidentiality was kept at each step of data collection and processing. The participants were assured that they have full right to participate or withdraw at any time from the study. In addition written informed consent was obtained from the participants before they are enrolled in the study. The consent form states the study's objectives, nature of participant's involvement, risk and benefits, and confidentiality of the data. Students then requested to read the consent form carefully. By doing so students were given clear options on voluntary participation. It was also made clear that they could refuse to answer any questions and terminate the interview whenever they desire and fill to do so Confidentiality of information was ensured by removing personal identifiers from the completed questionnaires(Annex:2 & Annex:4)

5. RESULTS

5.1 BACKGROUND CHARACTERISTICS OF RESPONDENTS

5.1.1 Socio-demographic and academic characteristics

All most the 870 students (358 male and 472 female) who invited to participate in the study completed the self-administered questionnaire with response rate of 95.4%. This high response rate can show us that there is great perception of the seriousness of the issue under study by the respondents and willingness to participate in spite of the sensitiveness on the issue. Some of the major reasons for not attaining the entire distributed questionnaire were discarding for having gross incompleteness of some important variables such as age and outcome variables and due to inconsistency, and some questionnaires not returned for unknown reasons. Students completed the self-administered questionnaire.

From Table.5.1.1 it can be seen that our sample was equally representative of gender, age ethnicity, type of institution (public or private) and religion. The mean age and standard deviation of the study participants was 20.5 +2.7 years. Out all, 544 (65.5%) of the respondents reported that they were from urban. The predominant religion was Orthodox Christian 517 (62.3%) followed by Protestant/catholic and Muslim which comprise 152(18.3%) and 137(16.5%) of the respondents. Ethnically 364 (43.9%) of the study participants were Oromo, 300 (36.1 %) were Amhara and the rest were Tigre, Guragie, Seltie etc….

Out of the total the 830 participants in this study, 567 (68.3%) were from AU and the rest 263 (32.3%) were from RVUC Adama campus, majority of the students 611 (73.6%) were attending their education in the degree program, and the rest were in diploma and post graduate degree level. Two hundred eighty nine or 34.8% of the students were year-three followed by year-one and year two which each account282 (34.%) and 240 (28.9%), respectively and the rest 14 (1.7%) students were year-four and above.

At the time of the survey, out of 263 private students, 147 (55.9%) of the students were living with family member, 26 (9.9 %%) were living with friends, and 57 (21.7%) were living alone. Concerning the marital status of the respondents, majority of the respondents 728(87.4.0%) of them were unmarried or never married, five hundred fifty five (66.9%) of the study participant already got RH education in high school or college by the time of the survey.

Table.5.1.1.1 Socio- Cultural and Demographic characteristics among University/ collage students of AU and RVUC in Adama town, Ethiopia on April 2010

Background characteristics(n=830)	Number	percent
Sex of the respondents		
Males	358	43.1
Females	472	56.9
Age group		
15-19	306	36.9
20 – 24	471	56.7
25 and above	47	5.7
No response	6	.7
Marital Status		
Unmarried/Never married	728	87.4
Married	73	9.6
Others	29	2.9
Religion		
Orthodox	517	62.3
Protestant/catholic	152	18.3
Muslim	137	16.5
Others	19	2.3
No response	5	.6
Ethnicity		
Oromo	364	43.9
Amhara	300	36.1
Tigre	42	5.1
Others	110	13.3
No response	14	1.7
Permanent place of residence		
Regional towns/cities	412	49.6
Zonal towns	132	15.9
Woroda/district	250	30.1
No response	36	4.3
Type of current accommodation		
With family	441	53.1
With friend	133	16.0
Alone	160	19.3
Others	62	7.5
No response	34	4.1
Attitude/Belief on those who have ever heard about EC		
Positive	361	43.5
Negative	55	6.6
Non response	416	50.1
Total		

Table.5.1.1.2: Academic characteristics among University/ collage students of AU and RVUC on in Adama town, Ethiopia April 2010

Background characteristics(n=830)	Number	percent
University/collage		
Public	567	68.3
Privet	263	31.7
Program being attended		
Diploma	211	25.4
Degree	611	73.6
Postgraduate	6	.7
No response	2	.2
Course Being Attended		
Health and Health related	219	26.4
Non Health and related	607	73.1
No response	4	.5
Level in the university/collage		
Year I	282	34.0
Year II	240	28.9
Year III	289	34.8
Year IV and above	14	1.7
No response	5	.6
Received RH education in school/College		
Yes	555	66.9
No	257	31.0
No response	18	2.2

5.1.2 Sexual and other reproductive health experiences

Among the total 830 respondents 300 (36.1%) admitted that they had experienced sexual intercourse with 22 (7.3%) of them did it before the age of 15 and another 164 (54.7%) between the ages 15 and 20. The minimum and maximum age at first sex is 13 and 29 years respectively making mean age and SD for having the first sexual intercourse 18.6 + 2.6 years. Among those who are sexually active 232 (77.3%) had sexual intercourse before marriage.

Two hundred forty two or 29% of the respondents claimed to have used contraceptive methods. The most commonly used contraceptive method was condom (65.3%) followed by pills and Inject able which each accounts 14.9% and 8.3% respectively. In line with this out those who are sexually active , 56 (18.7%) claimed that they have never used any of the contraceptive method.

A total of 104 of sexually active respondents replied that they had been pregnant or impregnated someone at least once previously. This represents 12.5 % of the total respondents and 34.7% of those who are sexually active. Out of those who provide their age at first pregnancy, nearly 62 % were below age of 20 and 4 of whom below the age of 14 years. Similarly out of those who were pregnant, 60 (75%0 reported that their pregnancy was unwanted,

Table 5.1.2.1 shows that 44 (5.3%) of the students had practiced induced abortions one or more times. This figure accounts for 14.7% of all the students who are sexually active and about 42.3% of those who said to have had at least one pregnancy. Out of the sixty unwanted pregnancies 77.3% of them end up with induced abortion. The mean number of abortions calculated was 1.5 + 0.8 ranging from 1 to 3. A considerable proportion of abortions 22.7% and 4.5%, were done by self-infliction and by untrained abortionist respectively,

Table 5.1.2.1*: Pregnancy and related characteristics among sexually active AU and RVUC students; Adama, Ethiopia, 2010 (n=300)*

Characteristics	N	%
Ever been pregnant/ impregnated someone(n=300)		
Yes	104	34.7
No	180	60.0
No response	16	5.3
Age at first pregnancy(n=104)		
< 15	4	3.8
15-20	30	28.9
20+	12	11.5
No response	58	55.7
Ever had unwanted pregnancy(n=104)		
Yes	60	57.7
No	36	34.6
No response	8	7.6
Ever had induced abortion(n=104)		
Yes	44	42.3
No	20	19.2
No response	39	37.5
Number of Induced Abortions(n=44)		
One	24	54.5
Two	6	13.6
Three and above	6	13.6
No response	8	18.2
Place of abortion(n=44)		
Self infliction	10	22.7
Clinics	32	72.7
Untrained abortionist(TBA)	2	4.5

Table 5.1.2.2*: Age at first sex and contraceptive use Among University/collage students at AU & RVUC; Adama Town, Ethiopia 2010*

Characteristics	N	%
Ever had sex(n=830)		
Yes	300	36.1
No	528	53.6
No response	2	.2
Age at first sex (n=300)		
<15	22	7,3
15-19	164	54.7
20+	72	24.0
No response	42	14
Ever used any contraceptives (n should have been 300)		
Yes	242	29.1
No	56	6.7
No response	2	0.24
Type of contraceptives(n=242)		
OCP	36	14.9
Injectable	20	8.3
IUCD	8	3.3
Condom	158	65.3
Others	18	7.4
No response	2	.8

5.1.3 Attitude of the respondents to EC

Students' attitudes on EC was measured using four items rated on a four-point Likert scale as (1) strongly disagree, (2) disagree, (3) agree and (4) strongly agree. The four questions that were applied to measure students attitude were : (a) "I would use ECP if I have unprotected intercourse during the unsafe period", (b) "The ECP is safe for its users", (c) "I would recommend ECPs to a friend" and (d) "Providing ECPs would discourage consistent use of condom" and students were considered as having positive attitude if the score 3 or 4 on the likert scale and this will add up to get the overall attitude towards EC, Accordingly from Figure *5.1.3*.1 about 43 %of the students have positive attitude towards emergency contraceptives as it measured for all attitude questions, however from table significant proportions of students perceive that ECP discourage persistent use of condoms in particular.

Figure 5.1.3.1: Attitude to EC on AU and RVUC students who have ever heard and; Adama, Ethiopia, 2010 (n=830)

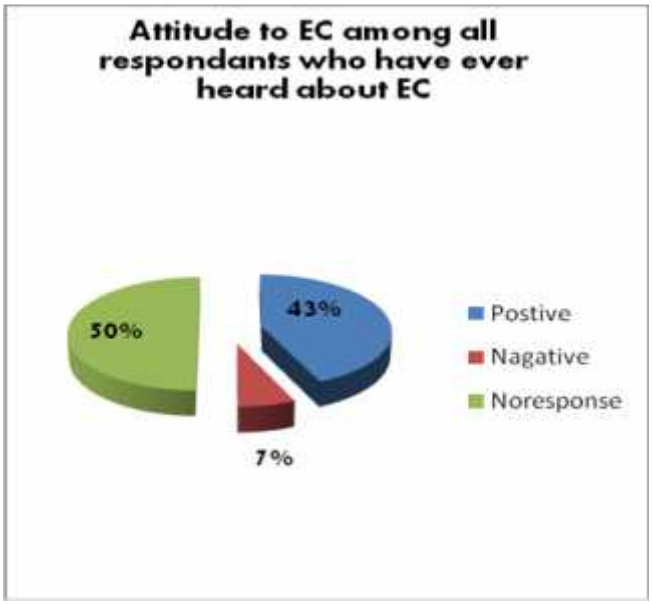
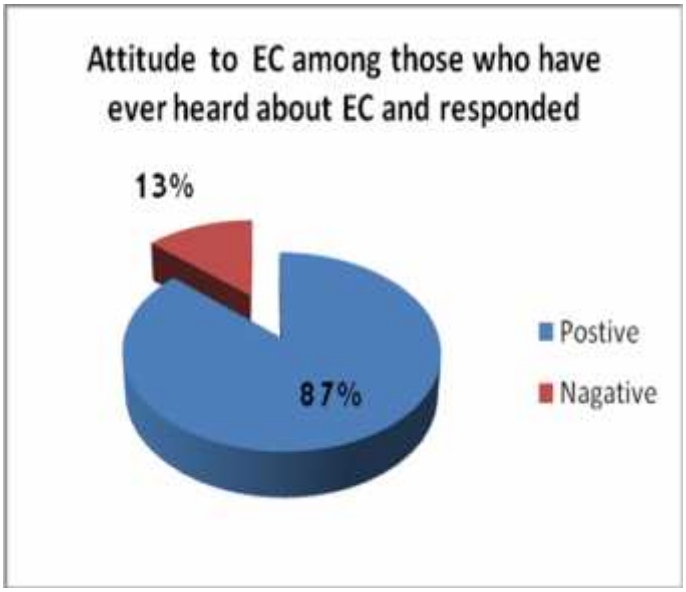


Figure 5.1.3.2: Attitude to EC on AU and RVUC students who have ever heard and responded; Adama, Ethiopia, 2010 (n=416)



From *Figure 5.1.3*.1presents that in general 50. % of the students have positive attitude towards emergency contraceptives. The positive attitudes reported by the respondents (i) **I would use ECP if I have unprotected intercourse**, , (ii) **ECP is safe for its users** (iii) **I would recommend ECPs to a friend**. And (IV) **ECPs would not discourage consistent use of condom however from** *Table 5.1.3.1, considerable* proportion (about 57%) of the respondents, responded "negatively or they believe that **ECPs would discourage consistent use of condom.**

Table 5.1.3.1 percentage distribution of positive attitudes of respondents according to each attitude questions items on EC on AU and RVUC students, Adama, Ethiopia, April 2010 (n=830)

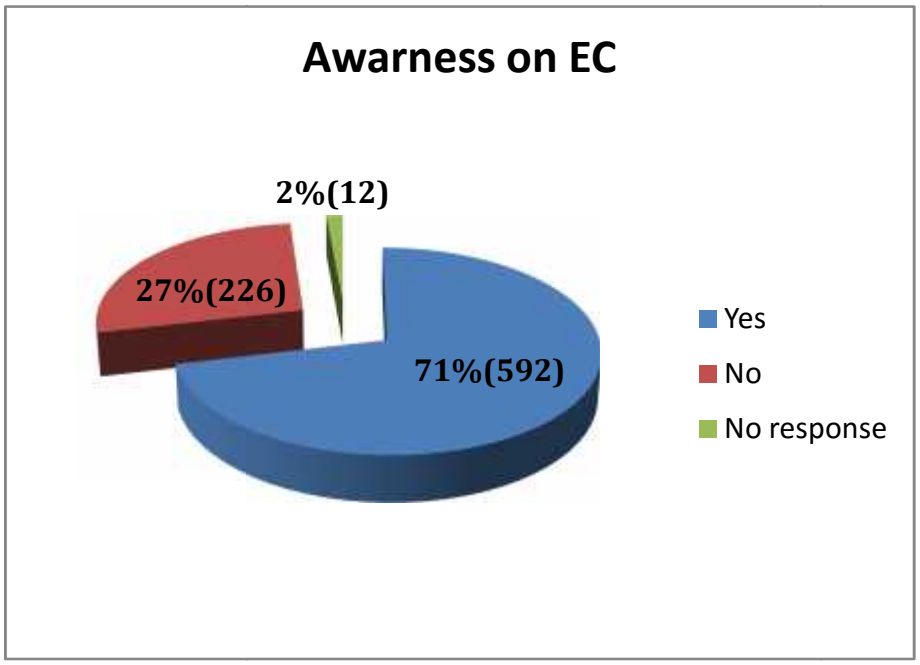
Attitude questions	**Positive attitude (%)**
I would use ECP if I have unprotected intercourse	*68.2*
ECP is safe for its users	*67.2*
I would recommend ECPs to a friend	*69.4*
ECPs would discourage consistent use of condom	*56.9*

5.2 MAGNITUDE OF AWARENESS AND SOURCE OF INFORMATION ON EC

5.2.1 Magnitude of awareness on EC

From Figure 5.2.1.1 Out of the total 830, 592 (71.3%) (95% CI: 68.1, 74.4%) respondents have ever heard or aware about EC while the other 226(27.2%) (95% CI: 24.3, 30.4%) had not heard about EC.

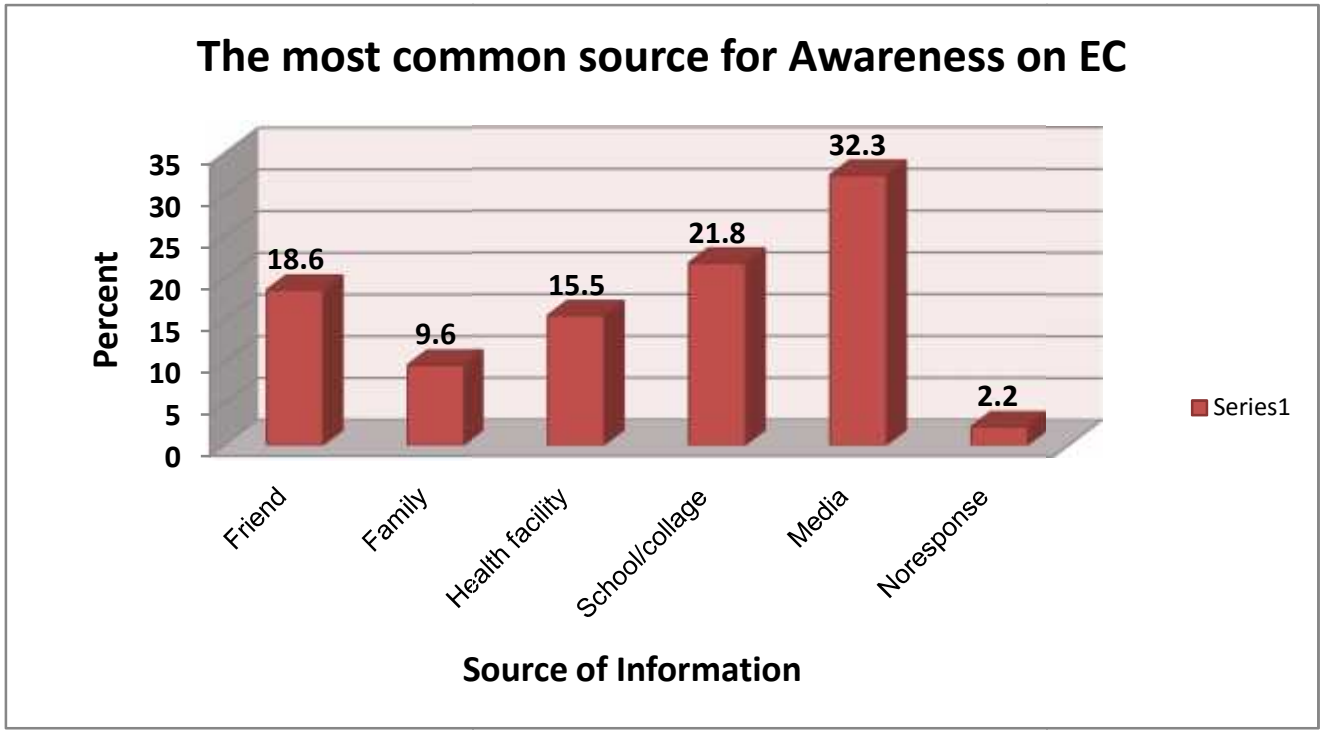
Figure 5.2.2.1 level of Awareness of EC among university/collage Students; AU, RVUC Adama, Ethiopia April 2010(n=830)



5.2.2 Sources of Information for awareness on EC

Figure 5.2.2.1 shows percentage of distribution by source of information on those who cited correctly the main source of information for their awareness on EC. From this figure one can see media was the main source of information which accounts 32.3 % the respondents.

Figure 5.2.2.1: Main sources of information on emergency contraceptive among respondents who have heard about it. among university/collage Students; AU, RVUC Adama, Ethiopia April 2010(n=830)



5.3 MAGNITUDE OF BASIC KNOWLEDGE AND SOURCE OF INFORMATION ON EC

5.3.1 Magnitude of basic Knowledge on EC

Regarding basic knowledge of emergency contraceptive, in this paper respondents were considered to have knowledge on EC, for those respondents who have scored at least 50% or responded correctly at least two of the four knowledge questions items and thus from fig *5.3.1.1* one can see only 241 (29%) (95%CI: 26.0, 32.3%) of the respondents have correctly responded at least two of the knowledge questions.

Figure 5.3.1.1 level of basic knowledge of EC among university/collage Students; AU, RVUC Adama, Ethiopia April 2010(n=830)

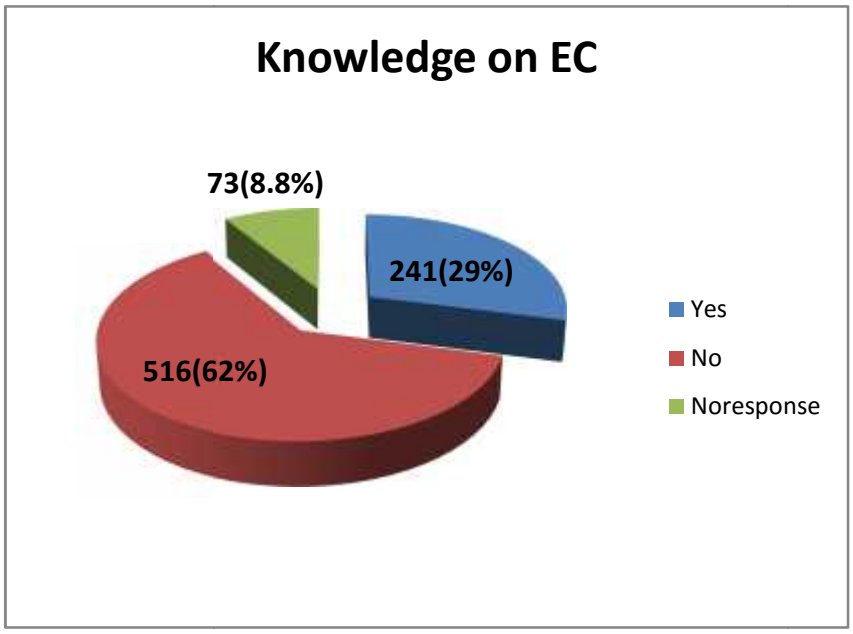


Table5.3.1.1 shows percentage of distribution of respondents' who cited correctly each knowledge question. From this table one can see only 2.8 % and 15.1% of the total respondents have correctly identified the name of the most commend brand available in the market and the maximum acceptable time for EC Administration respectively.

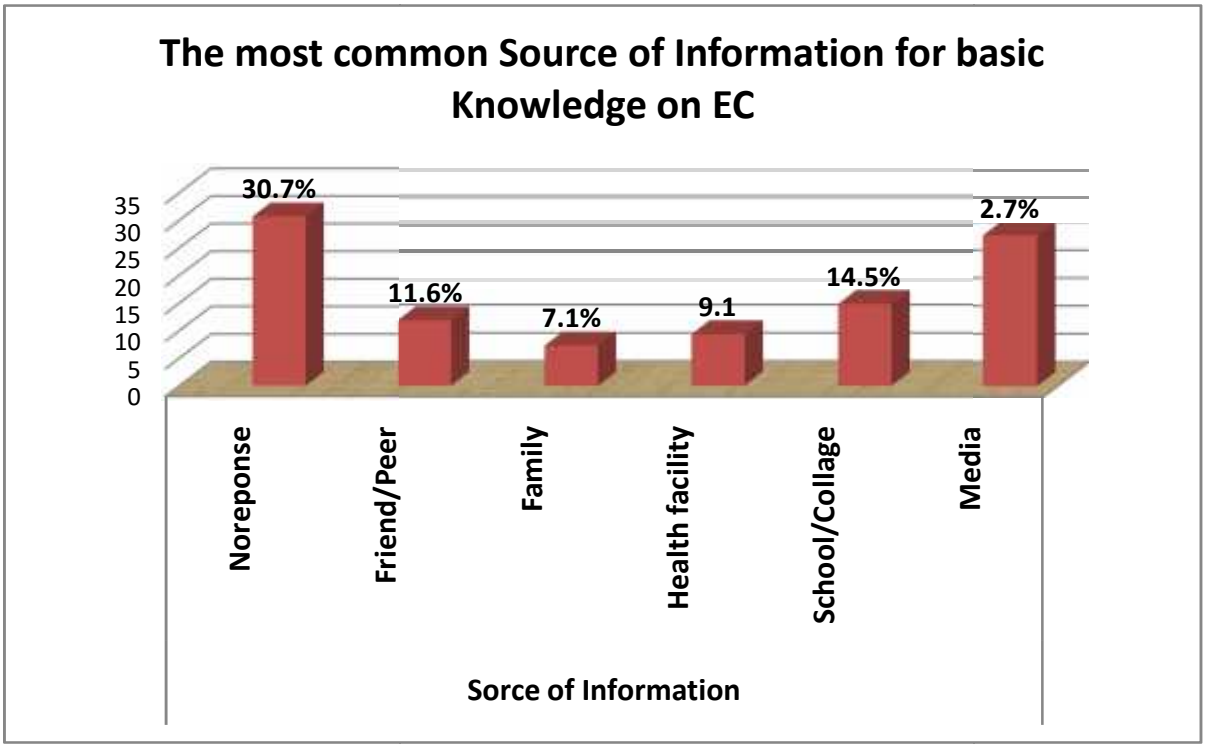
Table 5.3.1.2 percentage distribution of respondents according to each knowledge questions items on EC among university/collage Students; AU, RVUC Adama, Ethiopia April 2010(n=830)

	Questions items	Correct Answer among choices	(%) of respondents who cited correctly (n=830)	95%CI
1.	Which of these is an ECP?	**Norlevo**	2.8	(1.8, 4.2)
2.	What is the maximum acceptable time after sex for a woman to take ECP?	**72–120 hr**	15.1	(12.7, 17.7)
3.	Emergency contraceptive pill is a method of early abortion	**No**	43.5	(40.1, 46.9)
4.	When taken early, ECP can prevent STIs	**No**	45.3	(41.9, 48.8)

5.3.2 Source of Information for basic Knowledge on EC

Fig 5.3.2.1 shows among 241 who are knowledgeable about EC about 70 % of them have clearly cited the main source of information regarding their knowledge on EC and accordingly School/Collage, friends/pers and health facility were the main source of information ranking one up to three which each account 14.5%, 11.6% and 9.1% respectively.

Figure 5.3.2.1: Main sources of information on emergency contraceptive among respondents who have Knowledge about it. Among university/collage Students; AU, RVUC Adama, Ethiopia April 2010(n=241)



5.4 MAGNITUDE OF UTILIZATION OF EC

As it is shown in Table 4, when the respondents gave answers to questions on previous use of an "after intercourse" preventive method or EC, only 14.2% (95% CI 11.9%-16.9%) respondents reported that they had used emergency contraceptive methods previously. This represents 39.3 %(95%CI: 33.8, 41.5%) sexually active students. When asked about specific types of emergency contraceptives, among those who have ever used of emergency contraceptives, 32 (54.2%) mentioned pills and 8 (13.6%) mentioned IUCDs.

Table 5.4.1: level of practice/utilization and type of EC being used among university/collage Students; AU, RVUC Adama Town, Ethiopia April 2010

Characteristics	Number	Percent
Ever used EC (n=830)		
Yes	118	14.2
No	670	80.7
No response	42	5.0
Type of EC ever used(n=118)		
Pill	64	54.2
IUCD	16	13.6
others	32	27.1
No response	6	5.1

5.5 DETERMINANTS TO BASIC KNOWLEDGE ON EC

From table 5.5.1 Multivariate analysis was employed in order to control potentially confounding factors putting, step by step, in a model consisting of all the variables considered to be important covariates for basic knowledge(Age, Gender, Course being studied, RH education in school or college, marital status, etc...) in the current academic year *(Table 5.5.1).*

I. COURSE OR FIELD BEING STUDIED BY THE RESPONDENT (HEALTH OR NON HEALTH)

Adjusted Odds Ratio (OR) after multivariate analysis showed that students on health and health related courses or programs were found to be 2.34 times (OR=2.34 95%CI:(1.26 ,4.35)) more likely to have basic knowledge about EC in the current academic year compared to the students on non health related courses/programs.

II. LEVEL/YEAR IN THE UNIVERSITY

Adjusted Odds Ratio (OR) after multivariate analysis showed, there is significant difference between year I and year III regarding knowledge on EC. Knowledge is lower for year I compared to Year III (OR=0.58; 95%CI: 0.34, 0.99) It increases significantly with increasing level in the in the university from I to Year III and above.

III. AGE

Age of the respondent was one of the determinant variables that showed significant difference on knowledge of EC. When adjusted for other variables. The level of knowledge is higher for age group (15-19yrs) compared to age group 25 and above with (OR=2.97; 95% CI: 1.08, 8.17).

IV. TYPE OF CURRENT ACCOMMODATION

With whom is the respondent currently living is the other determinant variable for Knowledge on EC. When adjusted for other variables, study participants who are living with their families/parents are 1.87times (95% CI: 1.09, 3.00) more knowledgeable than study participants who are living alone.

V. ETHNICITY

Adjusted Odds Ratio (OR) after multivariate analysis showed, ethnically Oromo students have lower level of Knowledge on EC than Amhara students but they have higher level of knowledge on EC compared to Tigre students with (OR=0.59; 95% CI: 0.38, 0.98) and (OR=5.6; 95%CI: 1.23, 24.63) respectively.

VI. RELIGION

Religion was another factor or determinant that was identified for knowledge on EC among respondents in this study, accordingly the level of knowledge in students with Orthodox Christians are 2.54 times (95%CI: 1.47, 4.37) and 3.04 times (95%CI; 1.78, 5.40) higher than catholic/protestant and Muslim students respectively.

The type of institution (public or private), program/level being studied (diploma, degree or post graduate), though both of this variables were found to be strong covariates of Knowledge in the current academic year on crude OR, both of them were not determinants to Knowledge on EC after multivariate analysis.

Table 5.5.1 **Adjusted and Crudes Odd Ratio (OR) and 95% Confidence Interval (CI) for having Knowledge of emergency contraception among college/university students AU, RVUC Adama Town, Ethiopia April 2010**

Selected predictors	Basic Knowledge to EC in the Current Year		OR (95% CI)	
	N=830	P (%)	Crude	Adjusted
Sex of the respondents				
Males(ref.)	358	11.4	1	1
Females	472	17.6	0.74 (0.54, 1.01)	2.25 (0.48,10.50)
Age group	306			
15-19(ref.)	471	11.0	1	1
20 – 24	47	16.6	1.00 (0.72-1.37)	1.23(0.83,1.99)
25 and above		1.2	1.67 (0.79-3.52)	2.97(1.08,8.17)
Marital Status	73			
Married (ref.)	728	2.4	1	1
Unmarried		25.9	0.95 (0.54-1.66)	1.67(0.24, 10.67)
Religion	517			
Orthodox(ref.)	152	22.2	1	1
Protestant/catholic	137	3.9	1.96 (1.26-3.03)	2.54(1.47,4.37)
Islam		2.3	3.49 (2.07,5.88)	3.04 (1.78 ,5.40)
Ethnicity	364			
Oromo(ref.)	300	11.9	1	1
Amhara	42	13.3	0.67 (0.49, 0.96)	0.59(0.38, 0.91)
Tigre	110	0.5	3.68 (1.27, 10.67	5.55(1.23,24.63)
others		3.4	1.47 (0.90, 2.38)	0.89(0.49, 1.61)
University/collage	567			
Public(ref.)	263	17.5	1	1
Privet		11.6	0.60 (0.44, 0.83)	0.96(0.50 , 1.83)
Program /level being attended	211			
Diploma(ref.)	617	9.3	1	1
Degree and above		19.5	1.67 (1.20, 2.39)	1.21(0.63, 2.34)
Course being attended	219			
Health and health related(ref.)	607	11.0	1	1
Non Health		19.0	1.79 (1.28, 2.51)	2.34(1.26 ,4.35)
Level in the university/collage	282			
Year I(ref.)	240	7.6	1	1
Year II	203	8.4	0.77 (0.52, 1.15)	0.72(0.43,1.119)
Year III and above		12.8	0.51 (0.35, 0.75)	0.58(0.34,0.99)
Permanent place of residence	412			
Regional towns/cities(ref.)	132	13.9	1	1
Zonal towns	250	4.5	0.86 (0.55,1,35)	0.74(0.34, 1.64)
Woroda/district		9.6	0.86 (0.61,1.21)	0.80(0.42,1.52)
Type of current accommodation	441			
With family members(ref.)	133	16.6	1	1.
With friend/husband	160	4.8	1.04 (0.68,1.61)	0.87(0.54,1.41)
Alone		4.0	1.68 (1.08,2.61)	1.81(1,09,3.00)
RH education in school/College	555			
Yes(ref.)	257	19.6	1	1
No		8.9	1.05 (0.76, 1.47)	0.85(0.58,1.23)
Attitude/Belief	361			
Positive(ref.)	55	13.5	1	1
Negative		1.8	1.21 (0.64,2.31)	1.19(0.54,2.65)
-2 Log likelihood				**714.418**
Cox & Snell R Square				**0.115**

5.6 DETERMINANTS TO UTILIZATION OF EC

From table Table5.6.1: Multivariate analysis was also employed in order to control potentially confounding factors for utilization/practice of EC putting, step by step, in a model consisting of all the variables considered to be important covariates (Age, Gender, Course being studied, RH education in school or college, marital status, Knowledge, attitude etc ...) in the current academic year.

I. GENDER

Adjusted Odds Ratio (OR) after multivariate analysis showed that the level of EC practice /utilization is lower on male students to their partners than female students. (OR= 0.51; 95%CI: (0.28, 0.93))

II. AGE

The trend of practice of EC significantly decreases with increasing age this remain significant even after multi vitiate analysis, hence age group 15-19yrs tend to use EC 4.9 times(95%CI: 1.31,18.20) and 34 times(95%CI: 4.51,257.44) than age group 20 – 24 and 25 and above respectively.

III. MARITAL STATUS

Marital status is other statically significant determinant on both crude OR and after possible confounding factors are adjusted, hence unmarried or never married students have lower level of practice of EC compared to married ones(OR=0.1495%CI: 0.05,0.39)

IV. RELIGION

There was statically significant practice of EC after multivariate analysis between Orthodox Christians and protestant/catholic followers hence followers of Orthodox Christians tend to use /practice lower than followers of protestant/catholic(OR= 0.38 95%CI: (0.16, 0.91) but there was no statically significant difference with that of Muslim followers.

V. COURSE OR FIELD BEING STUDIED BY THE RESPONDENT (HEALTH OR NON HEALTH)

Adjusted Odds Ratio (OR) after multivariate analysis showed that students on health and health related courses or programs were found to practice or use EC lower than students of non health related courses/programs. (OR=0.26 95%CI :(0.10, 0.70).

VI. ATTITUDE

Attitude was one of the strong covariate for practice of EC that remain significant on both crudes ratio and after multivariate analysis, hence students who have positive attitude to EC tend to use /practice EC 9.5 times (95%CI 1.03, 86.65) than students with negative attitude to EC.

Level in the university/collage(year I, II, III or above), University/collage type(public or private) though both of this variables were found to be strong covariates of practice/utilization on Crudes ratio in the current academic year both of them were not determinants to practice/utilization of EC after multivariate analysis.

Table5.6.1: Adjusted and Crudes Odd Ratio (OR) and 95% Confidence Interval (CI) for practice/utilization of emergency contraception among college students, AU, RVUC Adama Town, Ethiopia April 2010(n=830)

Selected predictors	EC Practice/Utilization In the Current Year		OR(95% CI)	
	N=830	P (%)	Crude	Adjusted
Sex of the respondents	358			
Males(ref.)	472	6.8	1	1
Females		7.5	0.47(0.29,0.78)	0.51 (0.28,0.93)
Age group	306			
15-19(ref.)	471	2.6	1	1
20 – 24	47	10.4	2.17 (1.02-4.65)	4.88 (1.31,18.20)
25 and above		1.0	5,96 (2.07-17.19)	34.09 (4.51,257.44)
Marital Status	73			
Married (ref.)	728	3.9	1	1
Unmarried		10.4	0.50 (0.27,0.92)	0.14 (0.05,0.39)
Religion	517			
Orthodox(ref.)	152	7.2	1	1
Protestant/catholic	137	2.9	0.81 (0.43-1.55)	0.38 (0.16,0.91)
Islam		3.6	0.75 (0.41-1.38)	0.96 (0.42,2.18)
Ethnicity	364			
Oromo(ref.)	300	8.9	1	1
Amhara	42	3.4	0.96 (0.31-1.37)	1.88 (0.78, 4.54)
Tigre		0.2	1.68 ((0.30-9.44)	3.89 (0.44,34.66)
University/collage	567			
Public(ref.)	263	9.2	1	1
Private		5.1	1.71((1.04, 2.82)	0.64 (0.18,2.30)
Program being attended	211			
Diploma(ref.)	617	4.3	1	1
Degree and above		9.6	0.64 (0.38, 1.07)	1.70 (0.58,5.05)
Course being attended	219			
Health and health related(ref.)	607	3.6	1	1
Non Health		10.4	0.45(0.27, 0.77)	0.26 (0.10,0.70)
Level in the university/collage	282			
Year I(ref.)	240	4.1	1	1
Year II	303	3.9	0.85 (0.41, 1.75)	0.36 (0.10,1.31)
Year III and above		6.3	1.87 (1.03,,3.41)	0.88 (0.27,2.90)
Permanent place of residence	412			
Regional towns/cities(ref.)	132	6.5	1	1
Zonal towns	250	3.4	0.50 (0.29,0.83)	0.43 (0.24,0.78)
Woroda/district		4.1	0.94 (0.59,1.50)	1.19 (0.49, 2.90)
Type of current accommodation	441			
With family members(ref.)	133	6.5	1	1
With friend/husband	160	1.9	1.03 (0.57,1.88)	1.87 (0.70,4.94)
Alone		4.1	0.57 (0.37, 0.88)	1.08 (0.51,2.29)
Attitude/Belief	361			
Positive(ref.)	55	6.6	1	**1**
Negative		0.2	4.71 (1.11,19.98)	**9.46 (**1.03,86.65)
-2 Log likelihood				**247.90**
Cox & Snell R Square				**0.12**

6. DISCUSSIONS

This study has tried to show the sexual behaviours, patterns of knowledge, practice and determinants on contraception; with a special emphasis on emergency contraception in students at higher education in Ethiopia. The limitations in this study could be the fact that other colleges and potential source of information were not included especially health care providers and health institutions were not assessed; which could have been equally important to identify the problem in addition to approaching clients.

Almost one third of the total number of study subjects reported that they are sexually active in their lifetime. Comparable results were reported by different studies conducted among AAU and UUC students, Nigerian university students and female medical school students in Mexican university. [49] [1010]Among unmarried students who were sexually active, about 30.2 % gave history of at least one pregnancy, of which 57.7% were unwanted pregnancies. On the other hand, among the total study participants, the prevalence of unwanted pregnancy was 7.3%, which is comparable with studies conducted on adolescents and university students in the country and in the continent, [14,] [17.] The prevalence of induced abortion in this study was 5.3% which is comparable with previous study in similar study population in the country[49] .70% the Unwanted pregnancy end up induced abortion, this finding is similar with the study done in our country[6].

About 70 % of the students had heard or aware about emergency contraceptive, however, only 29 % of them have responded correctly at least two questions out of four on EC to label them as having basic knowledge on EC. The questions were on timing of administration, the name of the most common brand EC available in the country, and whether EC prevents STI and whether or not it is a method for early abortion . Several studies conducted in higher institutes in South Africa, Ghana, Nigeria and other developing countries reported more or less similar findings[8] [9] [14] . in our study, pills are the most widely known emergency contraceptive method. The knowledge of students on emergency contraceptives was significantly higher for senior students (graduating class) as compared to their juniors. And for those students who are studying health and heath related field. Additionally ethnically Oromo and Amhara students have relatively basic knowledge on EC than others.

All in all 59% percent of students have positive attitude towards to emergency contraceptives because of this they strongly agree or agree to questions “recommend

ECP to their friend, they use ECP if they have sexual intercourse during the unsafe period, they perceive ECP is safe for its users and they do not think or assume ECP discourage persistent use of condom". However, a considerable proportion of respondents nearly 54 % reported they agree or strongly agree to "ECP discourage persistent use of condom".

Our findings showed that contraceptive prevalence rate of about 29.1 %. Condom and pills are the most common methods used method which both account for more than 80%. However emergency contraceptive prevalence was relatively low (29.1%) in other similar studies in Africa and Asia but relatively higher to study conducted in our country in similar population[8 9 10] Important reasons low prevalence could be compared to studies in other countries could be the lack of lack basic knowledge on timing of administration, the name of the most common brand available in the market and it clinical indication and also indicates the fact that there is low promotion and availability of methods in most health institutions and providers.

There are also arguments that the introduction of emergency contraceptives widely could discourage adolescents from using regular methods of contraceptives. However, some studies have proved that the use of emergency contraceptives doesn't affect at all the pattern of using regular contraception. [10]Relatively higher proportion of EC practice was reported in this studies compared to previous similar study conducted in AAU and UUC students but this was relatively low compared to studies conducted in South Africa and Nigeria [9 14.] The possible reasons for a low EC practice rate in this study compared to those conducted in South Africa and Nigeria and Asia could be the proportion of students who are sexually active is lower (36%); compared to 57% at the university in South Africa. This study showed that emergency contraceptive use was higher for students of un married compared to their counterparts and for female students compared to male students to their partners when adjusted for other variables.

Hence the important statically significant determinants that were identified for basic knowledge on EC in this study were course or field being studied by the respondent (health or non health) ,level/year in the university ,age, type of current accommodation, ethnicity ,religion and for practice/utilization were gender ,age, marital status, religion, course or field being studied by the respondent (health or non health), and attitude to EC

7. STRENGTHS AND LIMITATIONS OF THE STUDY

7.1 STRENGTHS

Involvement of male students in the study can be considered as strength of the study which capture complete picture of problem under study. Internal validity was assured for the following major reasons:

1. Study participants were selected randomly;

2. The questionnaire was pre-tested and based on theoretical frame work)

3. The questionnaire was closed ended, anonymous and self administered;

4. Relatively adequate numbers of study participants were involved to increase precision; and

5. Logistic regression (Multivariate) was done to minimize confounding

External validity was assured because the study is done on a study participant who comes from all regions of the country and the result can be generalized to all university students of the country.

7.2 LIMITATIONS

1. Under reporting or social desirability bias of utilization, basic knowledge and awareness on EC was inevitable since study deals on sensitive issues.
2. Report was obtained from study participants who are clients for the outcome variable under study and this report was not complemented from health provider or health institutions.
3. As any cross sectional study cause and effect relationship was not possible to establish for the factors dealt in the study because it is difficult to know which occurred first the exposure or outcome variable. For example in our study we have found those who have ever heard and those who have positive attitude tend to utilize EC than their counter part, but it is difficult to know whether the attitude or the outcome variable occurred first.

8. CONCLUSIONS AND RECOMMENDATION

8.1 CONCLUSION

This study shows that the awareness, basic knowledge, practice/utilization, of EC on study area found to be low. This is worrisome considering the social activities in this town, and the fact that most of these students belong to the age group at risk of unplanned/unintended pregnancy and considering the significant rate of unprotected sexual intercourse and high rate of before marriage sexual intercourse. Hence there is a need to raise awareness, basic knowledge and change attitude about emergency contraceptives as an option with other contraception methods and revitalizing of the family life education program in schools to include among others information emergency contraceptive. Moreover, existing "Reproductive Health Clubs" in high schools could be the venue for disseminating similar information. The awareness and providing basic knowledge on EC process has to be a collective effort of the schools, health facilities, media parents, government and non government organizations.

8.2 RECOMMENDATIONS

Finding from this study will address that EC Awareness, Knowledge and utilization among students of higher institution in Adama town is low which deserves the following interventions from concerned bodies.

1. Colleges should secure effective education or awareness strategies in short and in the long ran targeting both girls and boys students. This can be done through developing curriculum on the education systems and by organizing and strengthening clubs, such as RH clubs, by arranging youth friendly services and via existing associations, women associations.

2. College/University officials and clubs, NGOs, and other civic society organizations working on RH and family planning should tailor their programs according to the risk factors identified.

3. Expanding and strengthening of information, education and behaviour change communication (IE/BCC) activities aimed at Family planning with emphasis on EC in the college level as well as in the community.

4. *F*uture larger scale longitudinal studies that include health institutions and health care provider are recommended to deeply assess socio-cultural factors, for awareness and utilization of EC.

9. REFERENCES

1 **Global Health Council, Promises to Keep: The Toll of Unintended Pregnancies on Women's Lives in the Developing World 7 (2002), available at** http://www.globalhealth.org/assets/publications/PromisesToKeep.pdf.

2 **International Federation of Gynaecology and Obstetrics (FIGO), Ethical Aspects Of Induced Abortion For Non-Medical Reasons ¶ 11 (1998), available at** http://www.figo.org/default.asp?id=6057.

3 **Centre For Reproductive right, Governments Worldwide Put Emergency Contraception into Women's Hands: A GLOBAL REVIEW OF LAWS AND POLICIES 9(2004), available at** http://www.reproductiverights.org

4 **Kilma SC: Unintended pregnancy: consequences and solutions for a worldwide problem. Journal of Nurse-Midwifery 1998, 43(6):483-491. Available at** http://www.biomedcentral.com/1472-698X/9/17/prepub

5 **Harrison KA et al., The influence of maternal age and parity on childbearing with special reference to primigravidae aged 15 years and under, British Journal of Obstetrics and Gynaecology, 1985 5(Suppl.):23–31; and Harrison KA, Obstetric fistulae, unpublished data, Geneva: World Health Organization, 1989.**

6 **Hassen F. Analysis of factors for unwanted pregnancy among women in the reproductive age group attending health institutes in Jimma town; Feb. 2000; Report.**

7 **Nnko S and Pool R, Sexual discourse in the contexts of AIDS: dominant themes on adolescent sexuality among primary school pupils in Magu district, Tanzania, Health Transition Review, 1997, 7(Suppl.): 85–90; Adedoyin M and Adegoke AA, Teenage prostitution-child abuse: a survey of Ilorin situation, African Journal of Medicine and Medical Science, 1995, 24(1):27–31; and Oladepo O and Brieger WR, AIDS knowledge, attitude and behavior patterns among university students in Ibadan, Nigeria, African Journal of Medicine and Medical Science, 1994, 23(2):119–125. Available at** http://www.guttermacher.org/pubs/journals/

8 **Okonofua FE, Factors associated with youth and adolescent pregnancy in rural Nigeria, Journal of Youth and Adolescents, 1995, 24(4): 419–438; and Odujirin OMT, Sexual activity, contraceptive practice and abortion among adolescents in Lagos, Nigeria, International Journal of Gynaecology and Obstetrics, 1991, 34(4):361–366. Available at** http://www.guttermacher.org/pubs/journals/

9 **Adhikari R: Factors affecting condom use at the first sexual intercourse among college students of Kathmandu, Nepal. Paper presented in the 19th World Congress for Sexual Health- Göteborg, Sweden-June 21-25, 2009. Available at** http://www.biomedcentral.com/1472-6874/9/27

10 **Arowojolu AO and Adekunle AO, Perception and practice of emergency contraception by post-secondary students in South West Nigeria, African Journal of Reproductive Health, 2000, 4(1):56–65; and Okpani AOU and Okpani JU, Sexual activity and contraceptive use among female adolescents: a report from Port Harcourt, Nigeria, African Journal of Reproductive Health, 2000, 4(1):40–47**

11 **University of Michigan on line [s.a]. Premarital sex, sexuality, and risk to HIV/AIDS in Addis Abeba, Ethiopia. From** http://www.nih.gov/ (accessed on Nov 16,2009)

12 Tamire, W, Enqueselassie, F, Knowledge, attitude, and practice on emergency contraceptives among female university students in Addis Ababa, Ethiopia. Ethiop.J.Health Dev. 2007;21(2)

13 UNFPA: The states of the world's population. In The right to choose: Reproductive rights and reproductive health UNFPA New York; 1997.available at http://www.biomedcentral.com/1472-698X/9/17

14 WHO. Population Reference Bureau. Improving reproductive health in developing countries. A summary of findings from the National Research Council of the US National Academy of sciences, Washington D.C, 1997:1-32

15 Casterline JB, El Zanatay F, El Zeni LO. Unmet need and unintended fertility: Longitudinal evidence from upper Egypt. Int Fam Plan Perspect. 2003;29(4):158-66.

16 Alan Guttmacher Institute. Sharing responsibility: Women, society and abortion worldwide. AGI. New York USA: 1999; available at www.guttmacher.org/pubs/sharing.html.

17 Worku, S, Fantahun, M, Unintended pregnancy and induced abortion in a town with accessible family planning services: The case of Harar in eastern Ethiopia. Ethiop.J.Health Dev 2006;20(2)

18 Department of Family Health. Five-year Action Plan document for Adolescent Reproductive Health in Ethiopia, Federal Ministry of Health, Addis Ababa, 2001.

19 Nnko S and Pool R, Sexual discourse in the contexts of AIDS: dominant themes on adolescent sexuality among primary school pupils in Magu district, Tanzania, Health Transition Review, 1997, 7(Suppl.): 85–90; Adedoyin M and Adegoke AA, Teenage prostitution-child abuse: a survey of Ilorin situation, African Journal of Medicine and Medical Science, 1995, 24(1):27–31; and Oladepo O and Brieger WR, AIDS knowledge, attitude and behavior patterns among university students in Ibadan, Nigeria, African Journal of Medicine and Medical Science, 1994, 23(2):119–125.

20 Finer LB, Henshaw SK: Disparities in rates of unintended pregnancy in the United States, 1994 and 2001. Perspective on Sexual and Reproductive Health 2006, 38(2):90-96. Available at http://www.biomedcentral.com/1472-6874/9/27

21 Ebong RD.Sexual promiscuity:knowledge of dangers in institutions of higher learning. J. Soc.Health 1994; 114: 137-139

22 Nicholes D,et al. Rian Sexual behaviour, contraceptive practice and reproductive health among Nigerian adolescents.stud fam. Paln 1986; 17: 100-106

23 Fikadu A. and Fikadu K. Creating a better future for Ethiopian Youth. A conference on ARH. The David and Lucile Packard Foundation. Bahir Dar, Ethiopia .Nov.6-9, 2000.

24 Ramesh, A, Factors affecting awareness of emergency contraception among college students in Kathmandu, Nepal. BMC Women's Health 2009, 9:27. available at http://www.biomedcentral.com/1472-6874/9/27

25 International Consortium for Emergency Contraception: Emergency Contraceptive Pills, Washington DC 2nd edition. 2004.

26 Schwarz E, Gerbert R, Gonzales R: Need for emergency contraception in urgent care settings. Contraception 2007, 75:285-288

27 Consortium for Emergency Contraception: Expanding Global Access to Emergency Contraception: A collaborative approach to meeting women's needs Seattle, Consortium for Emergency Contraception; 2000.

28 Rachel K. Jones et al., Alan Guttmacher Institute (AGI), Contraceptive Use Among U.S. Women Having Abortions in 2000–2001, 34 Persp. On Sexual and Reprod. Health 294, 294 & 300 (Nov./Dec. 2002), available at
http://www.agiusa.org/pubs/journals/3429402.pdf.

29 Arowojolu AO and Adekunle AO, Perception and practice of emergency contraception by post-secondary students in South West Nigeria, African Journal of Reproductive Health, 2000, 4(1):56–65; and Okpani AOU and Okpani JU, Sexual activity and contraceptive use among female adolescents: a report from Port Harcourt, Nigeria, African Journal of Reproductive Health, 2000, 4(1):40–47.

30 Wielandt H, Boldsen J and Knudsen LB, The prevalent use of contraception among teenagers in Denmark and the corresponding low pregnancy rate, Journal of Biosocial Science, 2002, 34(1):1–11.

31 United Nations Population Fund. The state of the world population 1997. New York: UNFPA;1997

32 United Nations Development Program. Levels and trends of contraceptive use as assessed in 1998. New York: UNDP;1998.

33 Bizuneh, G, Shiferaw, S, Melkamu, Y. Unmet Need and Evaluation of Programme Options to Meet Unmet Need for Contraception in Ethiopia 2000 and 2005, Ethiopia Demographic and Health Surveys; September 2008

34 United Nations Statistics Division [s.a] Contraceptive use among currently married women 15-49 years old. Available at
http://www.MarriageandGod.com

35 AAU-ETD on line[ ] ASSESSMENT OF THE PREVALENCE OF PREMARITAL SEX AND UNPROTECTED SEXUAL PRACTICE AMONG GEDEO ZONE HIGH SCHOOL STUDENTS, SNNPR, ETHIOPIA, 2006 available at
http://handle.net/123456789/809

36 Kilma SC: Unintended pregnancy: consequences and solutions for a worldwide problem. Journal of Nurse-Midwifery 1998, 43(6):483-491.

37 World Health Organization (WHO), Division of Reproductive Health. Unsafe abortion: global and regional estimates of incidence and mortality due to abortion, with a listing of available country data. 3rd ed. Geneva: World Health Organization;1998

38 World Health Organization. Global and Regional Estimates of Unsafe Abortion and Associated Mortality in 2000. 4th ed. Geneva: World Health Organization; 2004.

39 Tadesse E, Yoseph S, Gossa A. Illegal abortion in five hospitals in Addis Ababa. EMJ; Oct 1994;32 (4):283-84.

40 Barbara E.K, Rogers W. Rochal and Widad Kidanemariam. Maternal mortality in Addis Ababa. Ethiopia studies in family planning.1986;17(6/1): 288-301.

41 World Bank. Investing in health. World development report, World Bank; 1993.

42 Hassen F. Analysis of factors for unwanted pregnancy among women in the reproductive age group attending health institutes in Jimma town; Feb. 2000; Report.

43 Kebede S, Jirra C, W/Mariam D. A survey of illegal abortion in Jimma Hospital; South West Ethiopia. Ethiop Med J. 2000;38:35-42.

44 Worku G, Kumbi S. A one year analysis of abortion in Gondar College of Medical Sciences Hospital; 1999. A data base on abortion; a compilation and analysis of available studies in Ethiopia.

45 Madebo T, Gebretsadik T. A six-month prospective study on different aspects of abortion. . Ethiop Med J. 1993;31:165-72.

46 Ethiopian Journal of Reproductive Health May 2007. SURVEY OF UNSAFE ABORTION IN SELECTED HEALTH FACILITIES IN ETHIOPIA. Available at http://www.esog.org.et/esog_journal.htm

47 Haile, A, Enqueselassie, F. Influence of women's autonomy on couple's contraception use in jimma town, Ethiopia. Ethiop.J.Health Dev.2006;20(3)

48 HIV/AIDS Prevention and Control Office (HAPCO). Behavioral Surveillance Survey (BSS) in Ethiopia.2000.

49 Enqueselassie, F, Tamire, W, Knowledge, attitude, and practice on emergency contraceptives among female university students in Addis Ababa, Ethiopia. Ethiop.J.Health Dev. 2007;21(2)

50 Pathfinder Comprehensive Reproductive Health and Family Planning Training Curriculum, MODULE 5: EMERGENCY CONTRACEPTIVE PILLS, Dev, Sep 2000.